

## CHAPTER

3

## LAB DATASHEET

DISCOVERY  
LAB

## How DO You Stack Up?

According to the *principle of superposition*, in undisturbed sequences of sedimentary rock, the oldest layers are on the bottom. Geologists use this principle to determine the relative age of the rocks in a small area.

In this activity, you will model what geologists do by drawing sections of different rock outcrops. Then you will create a part of the geologic column, showing the geologic history of the area that contains all of the outcrops.

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**MATERIALS**

- metric ruler
- pencil
- colored pencils or crayons
- white paper
- scissors
- transparent tape

**Procedure**

1. Cut out the boxes shown on page 169.
2. Use colored pencils to shade the different layers of each outcrop as shown in your textbook on page 79.
3. Pay close attention to the contact between layers—straight or wavy. Straight lines represent bedding planes, where deposition was continuous. Wavy lines represent unconformities, where rock layers may be missing. The top of each outcrop is incomplete, so it should be a jagged line. (Assume that the bottom of the lowest layer is a bedding plane.)
4. Note the symbols representing fossils in the layers of your outcrops. Pay attention to the variety of fossil shapes and the layers that they are in.
5. Write the outcrop number on the back of each section.
6. Lay the individual outcrops next to each other on your desk or table.
7. Find layers that have the same rocks and contain the same fossils. Move each outcrop up or down to align similar layers next to each other.
8. If unconformities appear in any of the outcrops, rock layers may be missing. You may need to examine other sections to find out what fits between the layers above and below the unconformities. Leave room for these layers by cutting the outcrops along the unconformities (wavy lines).
9. Eventually, you should be able to make a geologic column that represents all four of the outcrops. It will show rock types and fossils for all the known layers in the area.
10. Tape the pieces of paper together in a pattern that represents the complete geologic column. Tape the pattern to page 172.



## How DO You Stack Up? continued

**Analysis**

11. How many layers are in this part of the geologic column you modeled?

12 layers

12. Which is the oldest layer in your column? Which rock layer is the youngest? Describe these layers in terms of rock type and the fossils they contain.

The oldest layer is conglomerate. The fossils are "X" and "□". The youngest one is silt-stone. the fossils are "X" and "◇".

13. Which, if any, fossils can be used as index fossils for a single layer?

The index fossil is @ + Δ its in the layer made from limestone or

□ X in the conglomerate layer

Why are these fossils considered index fossils?

The are considered index fossils because they only appear in one layer.

## How DO You Stack Up? continued

14. List the fossils in your column from oldest to youngest. Label the oldest and youngest fossils.

Long, X, diamond, triangle, @, square, circle, coarse sandstone  
siltstone, dark shale, light shale, limestone, fine  
sandstone, siltstone, conglomerate, coarse sandstone  
siltstone

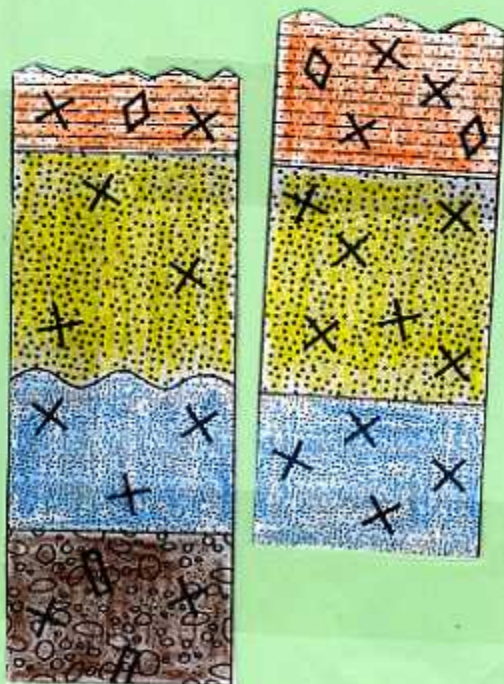
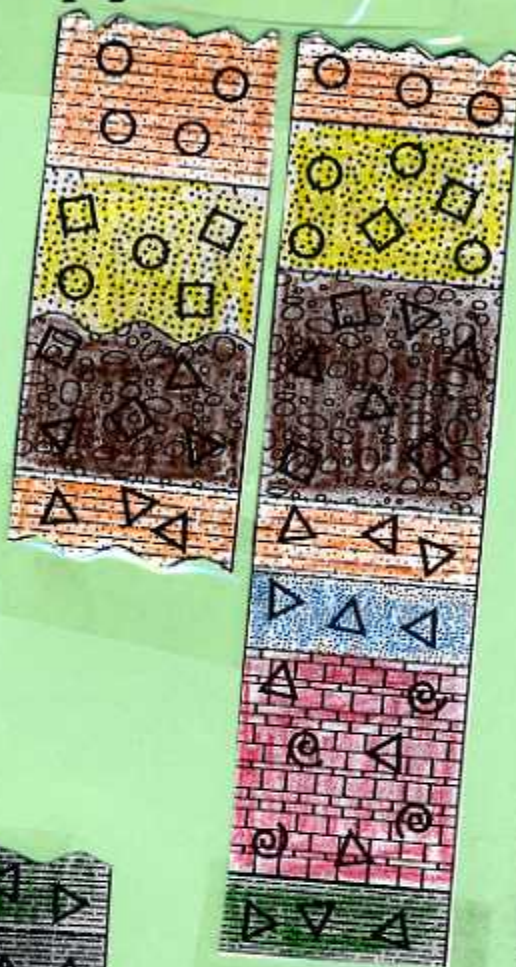
15. Look at the unconformity in Outcrop 2. Which rock layers are partially or completely missing? Explain how you know this.

Dark shale is missing, and everything above  
limestone. I know this because they  
are not there in the columns.



How DO You Stack Up? continued

**Tape your geologic column to this page.**



Labels  
- 2